

Amendments to the Claims:

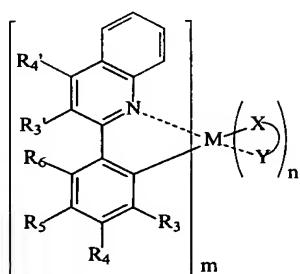
This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (canceled)

Claim 2 (canceled)

Claim 3 (currently amended) ~~The A compound of claim 2,~~ having the structure:



wherein

M is a metal having an atomic weight greater than 40;

R₃' is a substituent selected from the group consisting of alkyl, heteroalkyl, aryl, heteroaryl, and aralkyl, wherein R₃' is optionally substituted by one or more substituent Z;

R₅ is a substituent selected from the group consisting of aryl and heteroaryl, wherein aryl or heteroaryl is unsubstituted or optionally, substituted with one or more non-aromatic groups;

R₄' is independently H, alkyl, alkenyl, alkynyl, heteroalkyl, aryl, heteroaryl, or aralkyl;

R₃, R₄, and R₆ are each independently selected from the group consisting of H, alkyl, alkenyl, alkynyl, alkylaryl, CN, perfluoroalkyl, trifluorovinyl, CO₂R, C(O)R, NR₂, NO₂, OR, halo, aryl, heteroaryl, substituted aryl, substituted heteroaryl or a heterocyclic group;

each R is independently H, alkyl, alkenyl, alkynyl, heteroalkyl, aryl, heteroaryl, or aralkyl; wherein R is optionally substituted by one or more substituent Z;

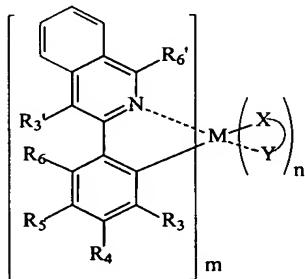
each Z is independently a halogen, R', O-R', N(R')₂, SR', C(O)R', C(O)OR', C(O)N(R')₂, CN, NO₂, SO₂, SOR', SO₂R', or SO₃R';

each R' is independently H, alkyl, perhaloalkyl, alkenyl, alkynyl, heteroalkyl, aralkyl, aryl, or heteroaryl;

(X-Y) is an ancillary ligand;

m is a value from 1 to the maximum number of ligands that may be attached to the metal; and m + n is the maximum number of ligands that may be attached to the metal.

Claim 4 (currently amended) ~~The A compound of claim 2,~~ having the structure:



wherein

M is a metal having an atomic weight greater than 40;

R3' is a substituent selected from the group consisting of alkyl, heteroalkyl, aryl, heteroaryl, and aralkyl, wherein R3' is optionally substituted by one or more substituent Z;

R5 is a substituent selected from the group consisting of aryl and heteroaryl, wherein aryl or heteroaryl is unsubstituted or optionally, substituted with one or more non-aromatic groups;

R6' is independently H, alkyl, alkenyl, alkynyl, heteroalkyl, aryl, heteroaryl, or aralkyl;

R3, R4, and R6 are each independently selected from the group consisting of H, alkyl, alkenyl, alkynyl, alkylaryl, CN, perfluoroalkyl, trifluorovinyl, CO₂R, C(O)R, NR₂, NO₂, OR, halo, aryl, heteroaryl, substituted aryl, substituted heteroaryl or a heterocyclic group;

each R is independently H, alkyl, alkenyl, alkynyl, heteroalkyl, aryl, heteroaryl, or aralkyl; wherein R is optionally substituted by one or more substituent Z;

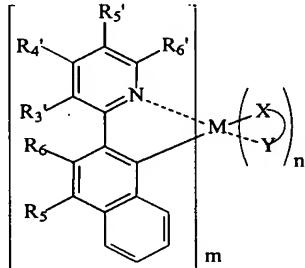
each Z is independently a halogen, R', O-R', N(R')₂, SR', C(O)R', C(O)OR', C(O)N(R')₂, CN, NO₂, SO₂, SOR', SO₂R', or SO₃R';

each R' is independently H, alkyl, perhaloalkyl, alkenyl, alkynyl, heteroalkyl, aralkyl, aryl, or heteroaryl;

(X-Y) is an ancillary ligand;

m is a value from 1 to the maximum number of ligands that may be attached to the metal; and m + n is the maximum number of ligands that may be attached to the metal.

Claim 5 (currently amended) The A compound of claim 2, having the structure:



wherein

M is a metal having an atomic weight greater than 40;

R3' is a substituent selected from the group consisting of alkyl, heteroalkyl, aryl, heteroaryl, and aralkyl, wherein R3' is optionally substituted by one or more substituent Z;

R5 is a substituent selected from the group consisting of aryl and heteroaryl, wherein aryl or heteroaryl is unsubstituted or optionally, substituted with one or more non-aromatic groups;

R4', R5', and R6' are each independently H, alkyl, alkenyl, alkynyl, heteroalkyl, aryl, heteroaryl, or aralkyl;

R6 is independently selected from the group consisting of H, alkyl, alkenyl, alkynyl, alkylaryl, CN, perfluoroalkyl, trifluorovinyl, CO₂R, C(O)R, NR₂, NO₂, OR, halo, aryl, heteroaryl, substituted aryl, substituted heteroaryl or a heterocyclic group;

each R is independently H, alkyl, alkenyl, alkynyl, heteroalkyl, aryl, heteroaryl, or aralkyl; wherein R is optionally substituted by one or more substituent Z;

each Z is independently a halogen, R', O-R', N(R')₂, SR', C(O)R', C(O)OR', C(O)N(R')₂, CN, NO₂, SO₂, SOR', SO₂R', or SO₃R';

each R' is independently H, alkyl, perhaloalkyl, alkenyl, alkynyl, heteroalkyl, aralkyl, aryl, or heteroaryl;

(X-Y) is an ancillary ligand;

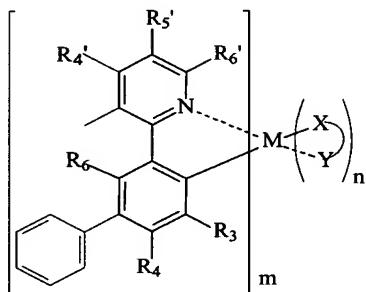
m is a value from 1 to the maximum number of ligands that may be attached to the metal; and m + n is the maximum number of ligands that may be attached to the metal.

Claim 6 (canceled)

Claim 7 (canceled)

Claim 8 (canceled)

Claim 9 (currently amended) ~~The A compound of claim 2,~~ having the structure:



wherein

M is a metal having an atomic weight greater than 40;

R₄' is independently H, alkyl, alkenyl, alkynyl, heteroalkyl, aryl, heteroaryl, or aralkyl;

R₃, R₄, and R₆ are each independently selected from the group consisting of H, alkyl, alkenyl, alkynyl, alkylaryl, CN, perfluoroalkyl, trifluorovinyl, CO₂R, C(O)R, NR₂, NO₂, OR, halo, aryl, heteroaryl, substituted aryl, substituted heteroaryl or a heterocyclic group;

each R is independently H, alkyl, alkenyl, alkynyl, heteroalkyl, aryl, heteroaryl, or aralkyl; wherein R is optionally substituted by one or more substituent Z;

each Z is independently a halogen, R', O-R', N(R')₂, SR', C(O)R', C(O)OR', C(O)N(R')₂, CN, NO₂, SO₂, SOR', SO₂R', or SO₃R';

each R' is independently H, alkyl, perhaloalkyl, alkenyl, alkynyl, heteroalkyl, aralkyl, aryl, or heteroaryl;

(X-Y) is an ancillary ligand;

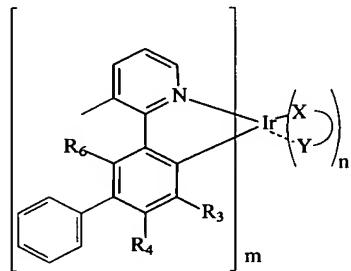
m is a value from 1 to the maximum number of ligands that may be attached to the metal; and m + n is the maximum number of ligands that may be attached to the metal; and

R₅' and R₆' are H, and additionally or alternatively, together form a fused 4- to 7-member cyclic group, wherein said cyclic group is cycloalkyl, cycloheteroalkyl, aryl, or heteroaryl.

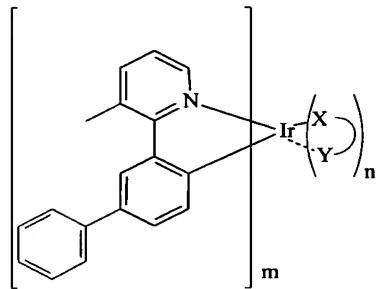
Claim 10 (original) The compound of claim 9, wherein M is selected from the group consisting of Ir, Pt, Pd, Rh, Re, Ru, Os, Tl, Pb, Bi, In, Sn, Sb, Te, Au, and Ag.

Claim 11 (original) The compound of claim 10, wherein M is Ir.

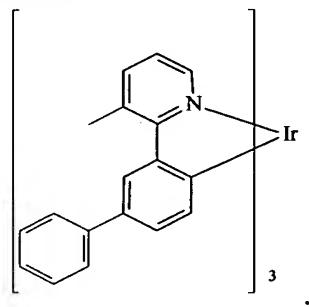
Claim 12 (currently amended) The compound of claim 11, having the structure:



Claim 13 (currently amended) The compound of claim 12, having the structure:

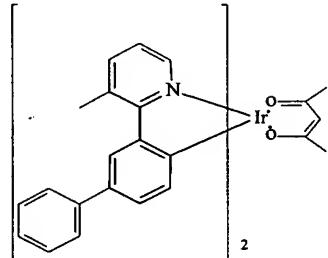


Claim 14 (currently amended) The compound of claim 13, wherein m is 3 and n is zero, such that the compound has the structure:

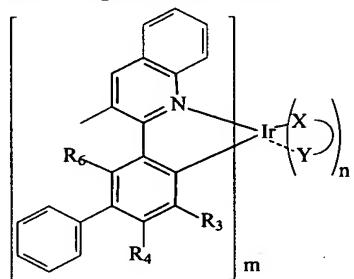


Claim 15 (original) The compound of claim 13, wherein m is 2 and n is 1.

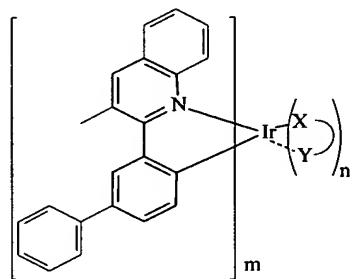
Claim 16 (currently amended) The compound of claim 15, having the structure:



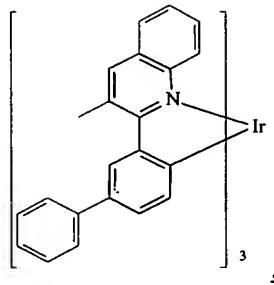
Claim 17 (currently amended) The compound of claim 11, having the structure:



Claim 18 (currently amended) The compound of claim 17, having the structure:

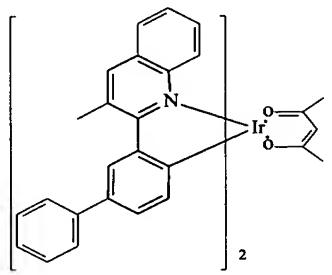


Claim 19 (currently amended) The compound of claim 18, wherein m is 3 and n is zero, such that the compound has the structure:



Claim 20 (original) The compound of claim 18, wherein m is 2 and n is 1.

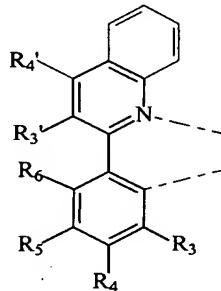
Claim 21 (currently amended) The compound of claim 20, having the structure:



Claim 22 (canceled)

Claim 23 (canceled)

Claim 24 (currently amended) ~~The A compound of claim 23, wherein the comprising a ligand has having the structure:~~



wherein

R_{3'} is a substituent selected from the group consisting of alkyl, heteroalkyl, aryl, heteroaryl, and aralkyl, wherein R_{3'} is optionally substituted by one or more substituent Z;

R₅ is a substituent selected from the group consisting of aryl and heteroaryl, wherein aryl or heteroaryl is unsubstituted or optionally, substituted with one or more non-aromatic groups;

the nitrogen atom N is coordinated to a metal having an atomic weight greater than 40;

R₄' is independently H, alkyl, alkenyl, alkynyl, heteroalkyl, aryl, heteroaryl, aralkyl;

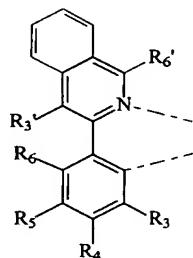
R₃, R₄, and R₆ are each independently selected from the group consisting of H, alkyl, alkenyl, alkynyl, alkylaryl, CN, perfluoroalkyl, trifluorovinyl, CO₂R, C(O)R, NR₂, NO₂, OR, halo, aryl, heteroaryl, substituted aryl, substituted heteroaryl or a heterocyclic group;

each R is independently H, alkyl, alkenyl, alkynyl, heteroalkyl, aryl, heteroaryl, or aralkyl; wherein R is optionally substituted by one or more substituent Z;

each Z is independently a halogen, R', O-R', N(R')₂, SR', C(O)R', C(O)OR', C(O)N(R')₂, CN, NO₂, SO₂, SOR', SO₂R', or SO₃R';

each R' is independently H, alkyl, perhaloalkyl, alkenyl, alkynyl, heteroalkyl, aralkyl, aryl, or heteroaryl.

Claim 25 (currently amended) The A compound of claim 23, wherein the comprising a ligand has having the structure:



wherein

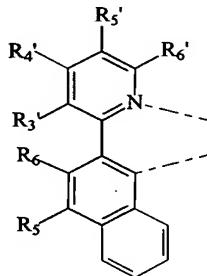
R₃' is a substituent selected from the group consisting of alkyl, heteroalkyl, aryl, heteroaryl, and aralkyl, wherein R₃' is optionally substituted by one or more substituent Z;

R₅ is a substituent selected from the group consisting of aryl and heteroaryl, wherein aryl or heteroaryl is unsubstituted or optionally, substituted with one or more non-aromatic groups;

the nitrogen atom N is coordinated to a metal having an atomic weight greater than 40;

R₆' is independently H, alkyl, alkenyl, alkynyl, heteroalkyl, aryl, heteroaryl, or aralkyl;
R₃, R₄, and R₆ are each independently selected from the group consisting of H, alkyl,
alkenyl, alkynyl, alkylaryl, CN, perfluoroalkyl, trifluorovinyl, CO₂R, C(O)R, NR₂, NO₂, OR,
halo, aryl, heteroaryl, substituted aryl, substituted heteroaryl or a heterocyclic group;
each R is independently H, alkyl, alkenyl, alkynyl, heteroalkyl, aryl, heteroaryl, or
aralkyl; wherein R is optionally substituted by one or more substituent Z;
each Z is independently a halogen, R', O-R', N(R')₂, SR', C(O)R', C(O)OR',
C(O)N(R')₂, CN, NO₂, SO₂, SOR', SO₂R', or SO₃R';
each R' is independently H, alkyl, perhaloalkyl, alkenyl, alkynyl, heteroalkyl, aralkyl,
aryl, or heteroaryl.

Claim 26 (currently amended) The A compound of claim 23, wherein the comprising a ligand has having the structure:



wherein

R₃' is a substituent selected from the group consisting of alkyl, heteroalkyl, aryl, heteroaryl, and aralkyl, wherein R₃' is optionally substituted by one or more substituent Z;
R₅ is a substituent selected from the group consisting of aryl and heteroaryl, wherein
aryl or heteroaryl is unsubstituted or optionally, substituted with one or more non-aromatic
groups;

the nitrogen atom N is coordinated to a metal having an atomic weight greater than
40;

R₄', R₅', and R₆' are each independently H, alkyl, alkenyl, alkynyl, heteroalkyl, aryl,
heteroaryl, or aralkyl;

R₆ is independently selected from the group consisting of H, alkyl, alkenyl, alkynyl,
alkylaryl, CN, perfluoroalkyl, trifluorovinyl, CO₂R, C(O)R, NR₂, NO₂, OR, halo, aryl,
heteroaryl, substituted aryl, substituted heteroaryl or a heterocyclic group;

each R is independently H, alkyl, alkenyl, alkynyl, heteroalkyl, aryl, heteroaryl, or aralkyl; wherein R is optionally substituted by one or more substituent Z;

each Z is independently a halogen, R', O-R', N(R')₂, SR', C(O)R', C(O)OR', C(O)N(R')₂, CN, NO₂, SO₂, SOR', SO₂R', or SO₃R';

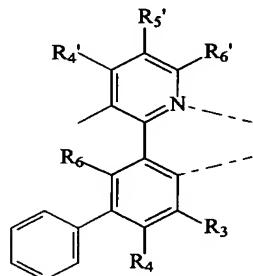
each R' is independently H, alkyl, perhaloalkyl, alkenyl, alkynyl, heteroalkyl, aralkyl, aryl, or heteroaryl.

Claim 27 (canceled)

Claim 28 (canceled)

Claim 29 (canceled)

Claim 30 (currently amended) The A compound of claim 23, wherein the comprising a ligand has having the structure:



wherein

the nitrogen atom N is coordinated to a metal having an atomic weight greater than 40;

R₄' is independently H, alkyl, alkenyl, alkynyl, heteroalkyl, aryl, heteroaryl, or aralkyl;

R₃, R₄, and R₆ are each independently selected from the group consisting of H, alkyl, alkenyl, alkynyl, alkylaryl, CN, perfluoroalkyl, trifluorovinyl, CO₂R, C(O)R, NR₂, NO₂, OR, halo, aryl, heteroaryl, substituted aryl, substituted heteroaryl or a heterocyclic group;

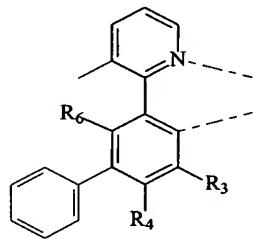
each R is independently H, alkyl, alkenyl, alkynyl, heteroalkyl, aryl, heteroaryl, or aralkyl; wherein R is optionally substituted by one or more substituent Z;

each Z is independently a halogen, R', O-R', N(R')₂, SR', C(O)R', C(O)OR', C(O)N(R')₂, CN, NO₂, SO₂, SOR', SO₂R', or SO₃R';

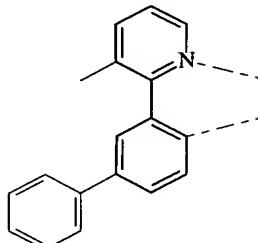
each R' is independently H, alkyl, perhaloalkyl, alkenyl, alkynyl, heteroalkyl, aralkyl, aryl, or heteroaryl; and

R₅' and R₆' are H, and additionally or alternatively, together form a fused 4- to 7-member cyclic group, wherein said cyclic group is cycloalkyl, cycloheteroalkyl, aryl, or heteroaryl.

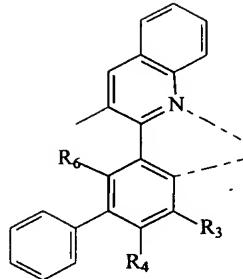
Claim 31 (currently amended) The compound of claim 30, wherein the ligand has the structure:



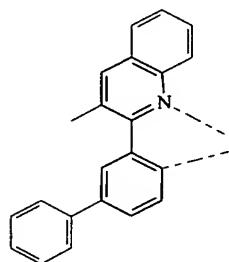
Claim 32 (currently amended) The compound of claim 31, wherein the ligand has the structure:



Claim 33 (currently amended) The compound of claim 30, wherein the ligand has the structure:



Claim 34 (currently amended) The compound of claim 33, wherein the ligand has the structure:

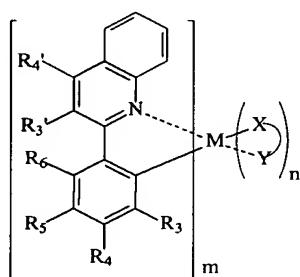


Claim 35 (canceled)

Claim 36 (canceled)

Claim 37 (currently amended) ~~The An organic light emitting device of claim 36, comprising~~
~~wherein the compound has the structure:~~

- (a) an anode;
- (b) a cathode; and
- (c) an emissive layer disposed between the anode and the cathode, wherein the emissive layer comprises an emissive material having the structure:



wherein

M is a metal having an atomic weight greater than 40;

R₃' is a substituent selected from the group consisting of alkyl, heteroalkyl, aryl, heteroaryl, and aralkyl, wherein R₃' is optionally substituted by one or more substituent Z;

R₅ is a substituent selected from the group consisting of aryl and heteroaryl, wherein aryl or heteroaryl is unsubstituted or optionally, substituted with one or more non-aromatic groups;

R₄' is independently H, alkyl, alkenyl, alkynyl, heteroalkyl, aryl, heteroaryl, or aralkyl;

R₂, R₄, and R₆ are each independently selected from the group consisting of H, alkyl, alkenyl, alkynyl, alkylaryl, CN, perfluoroalkyl, trifluorovinyl, CO₂R, C(O)R, NR₂, NO₂, OR, halo, aryl, heteroaryl, substituted aryl, substituted heteroaryl or a heterocyclic group;

each R is independently H, alkyl, alkenyl, alkynyl, heteroalkyl, aryl, heteroaryl, or aralkyl; wherein R is optionally substituted by one or more substituents Z;

each Z is independently a halogen, R', O-R', N(R')₂, SR', C(O)R', C(O)OR', C(O)N(R')₂, CN, NO₂, SO₂, SOR', SO₂R', or SO₃R';

each R' is independently H, alkyl, perhaloalkyl, alkenyl, alkynyl, heteroalkyl, aralkyl, aryl, or heteroaryl;

(X-Y) is an ancillary ligand;

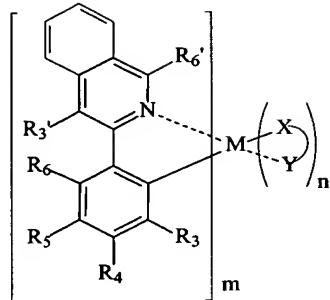
m is a value from 1 to the maximum number of ligands that may be attached to the metal; and m + n is the maximum number of ligands that may be attached to the metal.

Claim 38 (currently amended) The An organic light emitting device of claim 36, comprising wherein the compound has the structure:

(a) an anode;

(b) a cathode; and

(c) an emissive layer disposed between the anode and the cathode, wherein the emissive layer comprises an emissive material having the structure:



wherein

M is a metal having an atomic weight greater than 40;

R₃' is a substituent selected from the group consisting of alkyl, heteroalkyl, aryl, heteroaryl, and aralkyl, wherein R₃' is optionally substituted by one or more substituent Z;

R₅ is a substituent selected from the group consisting of aryl and heteroaryl, wherein aryl or heteroaryl is unsubstituted or optionally, substituted with one or more non-aromatic groups;

R₆' is independently H, alkyl, alkenyl, alkynyl, heteroalkyl, aryl, heteroaryl, or aralkyl;

R₃, R₄, and R₆ are each independently selected from the group consisting of H, alkyl, alkenyl, alkynyl, alkylaryl, CN, perfluoroalkyl, trifluorovinyl, CO₂R, C(O)R, NR₂, NO₂, OR, halo, aryl, heteroaryl, substituted aryl, substituted heteroaryl or a heterocyclic group;

each R is independently H, alkyl, alkenyl, alkynyl, heteroalkyl, aryl, heteroaryl, or aralkyl; wherein R is optionally substituted by one or more substituents Z;

each Z is independently a halogen, R', O-R', N(R')₂, SR', C(O)R', C(O)OR', C(O)N(R')₂, CN, NO₂, SO₂, SOR', SO₂R', or SO₃R';

each R' is independently H, alkyl, perhaloalkyl, alkenyl, alkynyl, heteroalkyl, aralkyl, aryl, or heteroaryl;

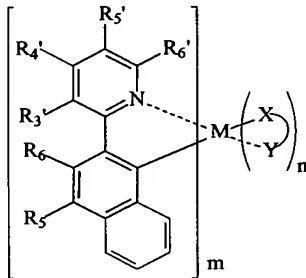
(X-Y) is an ancillary ligand;

m is a value from 1 to the maximum number of ligands that may be attached to the metal; and m + n is the maximum number of ligands that may be attached to the metal.

Claim 39 (currently amended) ~~The An organic light emitting device of claim 36, comprising wherein the compound has the structure:~~

(a) an anode;

(b) a cathode; and
 (c) an emissive layer disposed between the anode and the cathode, wherein the emissive layer comprises an emissive material having the structure:



wherein

M is a metal having an atomic weight greater than 40;

R₃' is a substituent selected from the group consisting of alkyl, heteroalkyl, aryl, heteroaryl, and aralkyl, wherein R₃' is optionally substituted by one or more substituent Z;

R₅ is a substituent selected from the group consisting of aryl and heteroaryl, wherein aryl or heteroaryl is unsubstituted or optionally, substituted with one or more non-aromatic groups;

R₄', R₅', and R₆' are each independently H, alkyl, alkenyl, alkynyl, heteroalkyl, aryl, heteroaryl, or aralkyl;

R₆ is independently selected from the group consisting of H, alkyl, alkenyl, alkynyl, alkylaryl, CN, perfluoroalkyl, trifluorovinyl, CO₂R, C(O)R, NR₂, NO₂, OR, halo, aryl, heteroaryl, substituted aryl, substituted heteroaryl or a heterocyclic group;

each R is independently H, alkyl, alkenyl, alkynyl, heteroalkyl, aryl, heteroaryl, or aralkyl; wherein R is optionally substituted by one or more substituents Z;

each Z is independently a halogen, R', O-R', N(R')₂, SR', C(O)R', C(O)OR', C(O)N(R')₂, CN, NO₂, SO₂, SOR', SO₂R', or SO₃R';

each R' is independently H, alkyl, perhaloalkyl, alkenyl, alkynyl, heteroalkyl, aralkyl, aryl, or heteroaryl;

(X-Y) is an ancillary ligand;

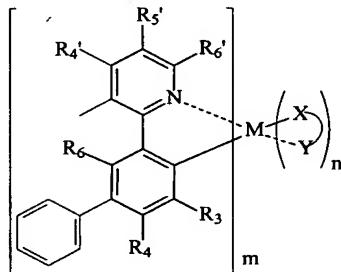
m is a value from 1 to the maximum number of ligands that may be attached to the metal; and m + n is the maximum number of ligands that may be attached to the metal.

Claim 41 (canceled)

Claim 42 (canceled)

Claim 43 (currently amended) ~~The An organic light emitting device of claim 36, comprising wherein the compound has the structure:~~

- (a) an anode;
- (b) a cathode; and
- (c) an emissive layer disposed between the anode and the cathode, wherein the emissive layer comprises an emissive material having the structure:



wherein

M is a metal having an atomic weight greater than 40;

R_{4'} is independently H, alkyl, alkenyl, alkynyl, heteroalkyl, aryl, heteroaryl, or aralkyl;

R₃, R₄, and R₆ are each independently selected from the group consisting of H, alkyl, alkenyl, alkynyl, alkylaryl, CN, perfluoroalkyl, trifluorovinyl, CO₂R, C(O)R, NR₂, NO₂, OR, halo, aryl, heteroaryl, substituted aryl, substituted heteroaryl or a heterocyclic group;

each R is independently H, alkyl, alkenyl, alkynyl, heteroalkyl, aryl, heteroaryl, or aralkyl; wherein R is optionally substituted by one or more substituent Z;

each Z is independently a halogen, R', O-R', N(R')₂, SR', C(O)R', C(O)OR', C(O)N(R')₂, CN, NO₂, SO₂, SOR', SO₂R', or SO₃R';

each R' is independently H, alkyl, perhaloalkyl, alkenyl, alkynyl, heteroalkyl, aralkyl, aryl, or heteroaryl;

(X-Y) is an ancillary ligand;

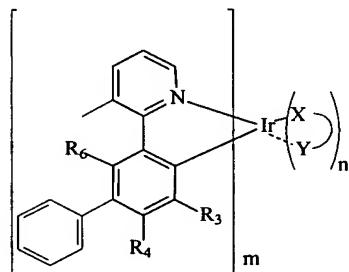
m is a value from 1 to the maximum number of ligands that may be attached to the metal; and m + n is the maximum number of ligands that may be attached to the metal; and

R₅' and R₆' are H, and additionally or alternatively, together form a fused 4- to 7-member cyclic group, wherein said cyclic group is cycloalkyl, cycloheteroalkyl, aryl, or heteroaryl.

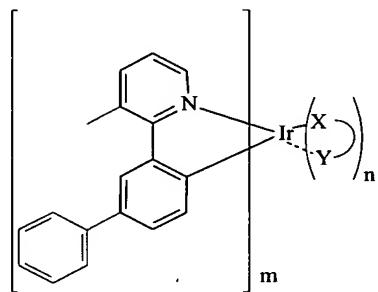
Claim 44 (original) The device of claim 43, wherein M is selected from the group consisting of Ir, Pt, Pd, Rh, Re, Ru, Os, Tl, Pb, Bi, In, Sn, Sb, Te, Au, and Ag.

Claim 45 (original) The device of claim 44, wherein M is Ir.

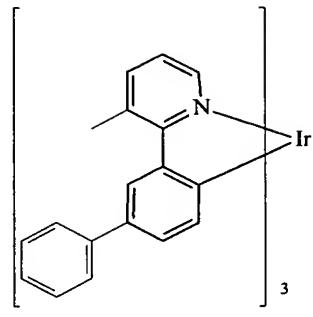
Claim 46 (currently amended) The device of claim 45, wherein the compound has the structure:



Claim 47 (currently amended) The device of claim 46, wherein the compound has the structure:

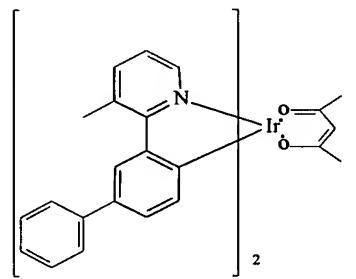


Claim 48 (currently amended) The device of claim 47, wherein m is 3 and n is zero, such that the compound has the structure:

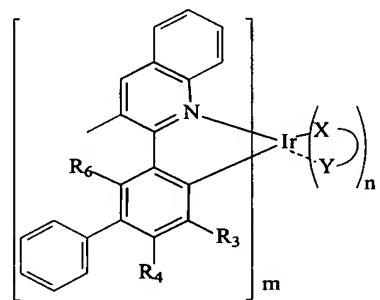


Claim 49 (original) The device of claim 47, wherein m is 2 and n is 1.

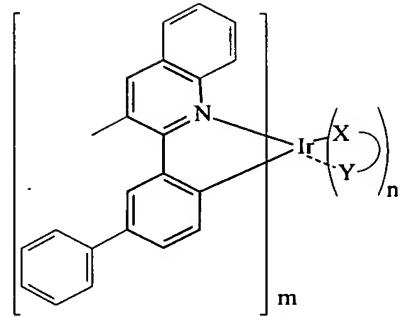
Claim 50 (currently amended) The device of claim 49, wherein the compound has the structure:



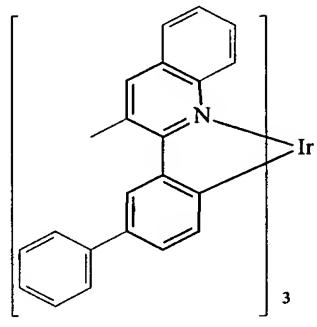
Claim 51 (currently amended) The device of claim 45, wherein the compound has the structure:



Claim 52 (currently amended) The device of claim 51, wherein the compound has the structure:

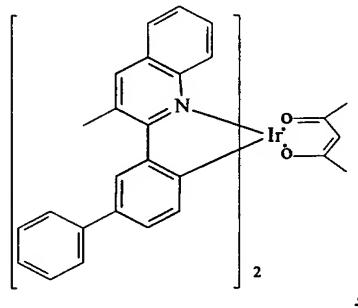


Claim 53 (currently amended) The device of claim 52, wherein m is 3 and n is zero, such that the compound has the structure:



Claim 54 (original) The device of claim 52, wherein m is 2 and n is 1.

Claim 55 (currently amended) The device of claim 54, wherein the compound has the structure:



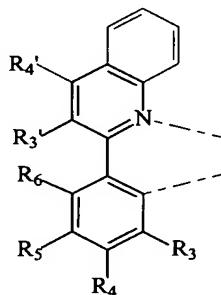
Claim 56 (original) The device of claim 43 35, wherein the device is incorporated into a consumer product.

Claim 57 (canceled)

Claim 58 (canceled)

Claim 59 (currently amended) The An organic light emitting device of claim 58, wherein the ligand has the structure comprising:

- (a) an anode;
- (b) a cathode; and
- (c) an emissive layer disposed between the anode and the cathode, wherein the emissive layer comprises an emissive material having a ligand with the structure:



wherein

R₃' is a substituent selected from the group consisting of alkyl, heteroalkyl, aryl, heteroaryl, and aralkyl, wherein R₃' is optionally substituted by one or more substituent Z;

R₅ is a substituent selected from the group consisting of aryl and heteroaryl, wherein aryl or heteroaryl is unsubstituted or optionally, substituted with one or more non-aromatic groups;

the nitrogen atom N is coordinated to a metal having an atomic weight greater than 40;

R₄ is independently H, alkyl, alkenyl, alkynyl, heteroalkyl, aryl, heteroaryl, aralkyl;

R₃, R₄, and R₆ are each independently selected from the group consisting of H, alkyl, alkenyl, alkynyl, alkylaryl, CN, perfluoroalkyl, trifluorovinyl, CO₂R, C(O)R, NR₂, NO₂, OR, halo, aryl, heteroaryl, substituted aryl, substituted heteroaryl or a heterocyclic group;

each R is independently H, alkyl, alkenyl, alkynyl, heteroalkyl, aryl, heteroaryl, or aralkyl; wherein R is optionally substituted by one or more substituent Z;

each Z is independently a halogen, R', O-R', N(R')₂, SR', C(O)R', C(O)OR', C(O)N(R')₂, CN, NO₂, SO₂, SOR', SO₂R', or SO₃R';

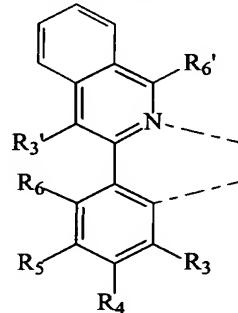
each R' is independently H, alkyl, perhaloalkyl, alkenyl, alkynyl, heteroalkyl, aralkyl, aryl, or heteroaryl.

Claim 60 (currently amended) The An organic light emitting device of claim 58, wherein the ligand has the structure comprising:

(a) an anode;

(b) a cathode; and

(c) an emissive layer disposed between the anode and the cathode, wherein the emissive layer comprises an emissive material having a ligand with the structure:



wherein

R₃' is a substituent selected from the group consisting of alkyl, heteroalkyl, aryl, heteroaryl, and aralkyl, wherein R₃' is optionally substituted by one or more substituent Z;

R₅ is a substituent selected from the group consisting of aryl and heteroaryl, wherein aryl or heteroaryl is unsubstituted or optionally, substituted with one or more non-aromatic groups;

the nitrogen atom N is coordinated to a metal having an atomic weight greater than 40;

R₆' is independently H, alkyl, alkenyl, alkynyl, heteroalkyl, aryl, heteroaryl, aralkyl; R₃, R₄, and R₆ are each independently selected from the group consisting of H, alkyl, alkenyl, alkynyl, alkylaryl, CN, perfluoroalkyl, trifluorovinyl, CO₂R, C(O)R, NR₂, NO₂, OR, halo, aryl, heteroaryl, substituted aryl, substituted heteroaryl or a heterocyclic group;

each R is independently H, alkyl, alkenyl, alkynyl, heteroalkyl, aryl, heteroaryl, or aralkyl; wherein R is optionally substituted by one or more substituent Z;

each Z is independently a halogen, R', O-R', N(R')₂, SR', C(O)R', C(O)OR', C(O)N(R')₂, CN, NO₂, SO₂, SOR', SO₂R', or SO₃R';

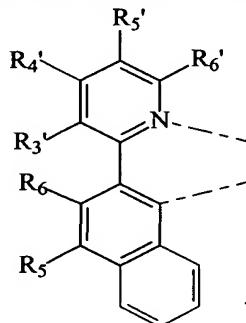
each R' is independently H, alkyl, perhaloalkyl, alkenyl, alkynyl, heteroalkyl, aralkyl, aryl, or heteroaryl.

Claim 61 (currently amended) ~~The An organic light emitting device of claim 58, wherein the ligand has the structure comprising:~~

(a) an anode;

(b) a cathode; and

(c) an emissive layer disposed between the anode and the cathode, wherein the emissive layer comprises an emissive material having a ligand with the structure:



wherein

R₃' is a substituent selected from the group consisting of alkyl, heteroalkyl, aryl, heteroaryl, and aralkyl, wherein R₃' is optionally substituted by one or more substituent Z;

R₅ is a substituent selected from the group consisting of aryl and heteroaryl, wherein aryl or heteroaryl is unsubstituted or optionally, substituted with one or more non-aromatic groups;

the nitrogen atom N is coordinated to a metal having an atomic weight greater than 40;

R₄', R₅', and R₆' are each independently H, alkyl, alkenyl, alkynyl, heteroalkyl, aryl, heteroaryl, aralkyl;

R₆ is independently selected from the group consisting of H, alkyl, alkenyl, alkynyl, alkylaryl, CN, perfluoroalkyl, trifluorovinyl, CO₂R, C(O)R, NR₂, NO₂, OR, halo, aryl, heteroaryl, substituted aryl, substituted heteroaryl or a heterocyclic group;

each R is independently H, alkyl, alkenyl, alkynyl, heteroalkyl, aryl, heteroaryl, or aralkyl; wherein R is optionally substituted by one or more substituent Z;

each Z is independently a halogen, R', O-R', N(R')₂, SR', C(O)R', C(O)OR', C(O)N(R')₂, CN, NO₂, SO₂, SOR', SO₂R', or SO₃R';

each R' is independently H, alkyl, perhaloalkyl, alkenyl, alkynyl, heteroalkyl, aralkyl, aryl, or heteroaryl.

Claim 62 (canceled)

Claim 63 (canceled)

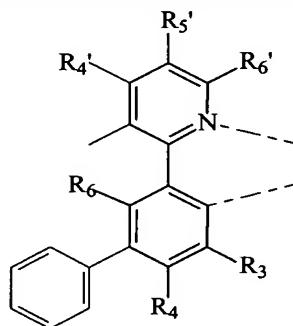
Claim 64 (canceled)

Claim 65 (currently amended) ~~The An organic light emitting device of claim 58, wherein the ligand has the structure comprising:~~

(a) an anode;

(b) a cathode; and

(c) an emissive layer disposed between the anode and the cathode, wherein the emissive layer comprises an emissive material having a ligand with the structure:



wherein

the nitrogen atom N is coordinated to a metal having an atomic weight greater than 40;

R₄' is independently H, alkyl, alkenyl, alkynyl, heteroalkyl, aryl, heteroaryl, aralkyl;

R₃, R₄, and R₆ are each independently selected from the group consisting of H, alkyl, alkenyl, alkynyl, alkylaryl, CN, perfluoroalkyl, trifluorovinyl, CO₂R, C(O)R, NR₂, NO₂, OR, halo, aryl, heteroaryl, substituted aryl, substituted heteroaryl or a heterocyclic group;

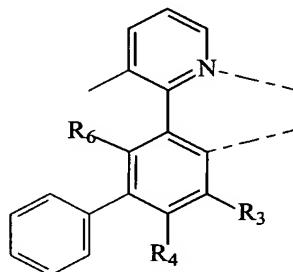
each R is independently H, alkyl, alkenyl, alkynyl, heteroalkyl, aryl, heteroaryl, or aralkyl; wherein R is optionally substituted by one or more substituent Z;

each Z is independently a halogen, R', O-R', N(R')₂, SR', C(O)R', C(O)OR', C(O)N(R')₂, CN, NO₂, SO₂, SOR', SO₂R', or SO₃R';

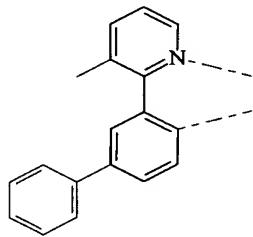
each R' is independently H, alkyl, perhaloalkyl, alkenyl, alkynyl, heteroalkyl, aralkyl, aryl, or heteroaryl; and

R_{5'} and R_{6'} are H, and additionally or alternatively, together form a fused 4- to 7-member cyclic group, wherein said cyclic group is cycloalkyl, cycloheteroalkyl, aryl, or heteroaryl.

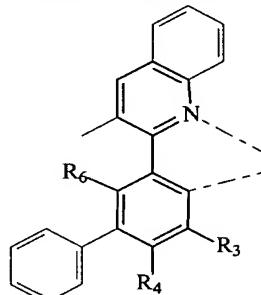
Claim 66 (currently amended) The device of claim 65, wherein the ligand has the structure:



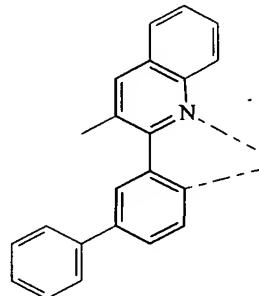
Claim 67 (currently amended) The device of claim 66, wherein the ligand has the structure:



Claim 68 (currently amended) The device of claim 65, wherein the ligand has the structure:



Claim 69 (currently amended) The device of claim 68, wherein the ligand has the structure:



Claim 70 (currently amended) The device of claim 65 ~~57~~, wherein the device is incorporated into a consumer product.